

A NEW VERONICA (SCROPHULARIACEAE) HYBRID FROM NEBRASKA

RALPH E. BROOKS¹

Recent field and herbarium studies have led to the discovery of a naturally occurring putative hybrid in the genus *Veronica* L. (Scrophulariaceae) from Nebraska. Spontaneous interspecific hybrids in the Scrophulariaceae are infrequent, and to my knowledge, no hybrids within *Veronica* have been previously reported. The putative parents of this hybrid are *V. anagallis-aquatica* L. and *V. catenata* Pennell.

Three unusual specimens were found in the University of Kansas herbarium and another specimen was located in the University of Nebraska-Lincoln herbarium. All collections were made in the Platte River valley of central and western Nebraska. Following the treatment of Pennell (1921), I determined that these plants were morphologically intermediate between *V. anagallis-aquatica* and *V. catenata*.

In August, 1974, I collected one to three hybrid plants from three wet, sandy riverbank sites along the Platte and North Platte Rivers in Nebraska. At each location I also made collections of the presumed parental species, *V. anagallis-aquatica* and *V. catenata*. *Veronica anagallis-aquatica* was more abundant in all these areas.

Some characteristics of the hybrid and its putative parents are listed in Table 1. Determination of young hybrids is difficult because most characters of the hybrids are intermediate between those of the parental species. Mature hybrids are readily distinguished from *V. anagallis-aquatica* and *V. catenata* primarily by the shriveled calyxes that result when an expanded seed-bearing capsule does not form. The result is a long raceme composed of many

¹I wish to acknowledge funds received from the Bridwell Foundation, Wichita Falls, Texas, which made this research possible.

short, contracted calyxes on long, slightly ascending pedicels. Both parental species produce expanded capsules when seed is set, giving the inflorescence a heavier, thicker appearance than in the hybrid plants.

As an indication of pollen viability, pollen stainability tests were made on the hybrid plants and their putative parents. Fresh pollen samples were stained with aniline blue in lactophenol; fully formed pollen grains with evenly staining cytoplasm were considered viable. Pollen grains from the hybrid plants were contracted, malformed, and less than 5% stainable. In contrast, the grains of *V. anagallis-aquatica* and *V. catenata* were fully formed and always more than 85% stainable.

The fact that few interspecific hybrids were found, even after extensive field work, indicates that well-developed mechanisms preventing hybridization between *V. anagallis-aquatica* and *V. catenata* exist. Laboratory investigations are in progress to determine the breeding system and cytogenetics of the proposed hybrid and its parents. In view of my findings at this time I present the following:

Veronica anagallis-aquatica × *catenata*.

Plants decumbent to erect, 3-7 dm tall; leaves sessile, 2-4 times as long as broad, entire to crenate-serrate; racemes 20-50-flowered; pedicels slightly ascending, longer than the perianth; calyx 1.0-1.8 mm broad near base; style 1.6-1.8 mm long; capsules shriveled or absent; pollen grains aborted.

SPECIMENS EXAMINED: **Nebraska:** DAWSON CO.: southeast of Gothenburg in Platte River bed, *Morrison* 1056 (NEB). GARDEN CO.: 1 mi. s. & 0.5 mi. e. Lewellen, low wet prairie, *Bare & McGregor* 1432 (KANU). KEITH CO.: 1 mi. s. Lemoyne, wet sandy shore of Lake McConaughy, *Brooks* 8008 (KANU). MERRICK CO.: 0.5 mi. w. Merrick-Polk Co. line on N-92, oxbow of Platte River, sandy, *Magrath* 6048 (KANU). MORRILL CO.: Bridgeport State Recreation Area, sandy margin of lake, *Richardson & Robinson* 1639 (KANU). POLK CO.: 11 mi. n. Osceola, sandy wet brushy bank of Platte River, *Brooks* 7816 (KANU).

LITERATURE CITED

PENNELL, F. W. 1921. *Veronica* in North and South America. *Rhodora* 23:1-22, 29-41.

Table 1. Characteristics of *Veronica anagallis-aquatica* × *catenata* and its putative parents.

	<i>V. anagallis-aquatica</i>	Hybrid	<i>V. catenata</i>
1. Habitat	low wet sandy meadows and stream banks, common	wet sandy stream banks, rare	low wet sandy meadows and stream banks, scattered
2. Plant Height	2-8 dm	3-7 dm	1-3 dm
3. Leaves	1.5-3 times as long as broad	2-4 times as long as broad	3-5 times as long as broad
4. Racemes	30-60-flowered	20-50-flowered	15-30-flowered
5. Pedicels	4-8 mm long, ascending	3.5-5 mm long, slightly ascending	3-6 mm long, divaricately spreading
6. Calyx	expanded	shriveled and contracted	expanded
7. Capsules	present, expanded, 2.4-4.3 mm broad	absent or reduced and shriveled, 0.5-1 mm broad	present, expanded, 2.3-3.5 mm broad
8. Seed-set	present	absent	present
9. Style	1.5-2 mm long	1.6-1.8 mm long	1.2-1.7 mm long
10. Pollen	normal, >85% stainable	aborted, <5% stainable	normal, >90% stainable

BOTANY RESEARCH LABORATORY
 UNIVERSITY OF KANSAS
 2045 AVE. A, CAMPUS WEST
 LAWRENCE, KANSAS 66044